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APPARATUS AND METHODS, filed April 5, 2001 and assigned Serial No. 09/828,322, included herein by reference, are particularly useful self-closing fasteners for securing the locally stressful attachment points at the heel or toe of the anastomosis.

II. Amendments to the claims:

Cancel claims 1, 13, 34, 54, 55, and 60-63.

Please substitute the following amended claims 2-12, 14, 15, 19-25, 27-29, 33, 35-37, 39-53, 56-59, 64-113 for the corresponding pending claims follows:

1. (Cancelled)

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2. (Amended once) The apparatus of claim 11, wherein said fastener includes two proximal members.

3. (Amended once) The apparatus of claim 11, wherein said open configuration includes openly restraining said plurality of proximal members.

4. (Amended once) The apparatus of claim 11, wherein said fastener is nitinol.

5. (Amended once) The apparatus of claim 11, wherein said fastener is of unitary construction.

6. (Amended once) The apparatus of claim 11, wherein said plurality of proximal members are elongated members.

7. (Amended once) The apparatus of claim 11, wherein said one or more distal members each comprise a disk-shaped member.

8. (Amended once) The apparatus of claim 11, wherein said the number of proximal members is equal to the number of distal members.

9. (Amended once) The apparatus of claim 8, wherein said fastener has a longitudinal orientation having a centerline, and wherein said proximal members and said distal members are approximately symmetric about said centerline.

10. (Amended once) The apparatus of claim 11, wherein a portion of said stopper has a proximally oriented surface, wherein said stopper is a spring, and wherein said stopper is distally deformable for application of force to said tissue.

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11. (Amended once) Apparatus for fastening tissue comprising a stopper, where said stopper includes one or more distal members, and a plurality of proximal members flexibly attached to said stopper, where said fastener has a fastened configuration in which said plurality of proximal members oppose at least a portion of said stopper, and an open configuration where said fastener is openly restrained from said fastened configuration to accept tissue, such that tissue positioned within said open configuration is compressed when said fastener is unrestrained, wherein at least one of said plurality of proximal members of said fastened configuration has a distally oriented end, and wherein said distally oriented end of said fastened configuration opposes at least a portion of said stopper.

12. (Amended once) The apparatus of claim 11, wherein at least a portion of said stopper has proximally oriented ends and wherein at least a portion of said plurality of proximal members of said fastened configuration oppose at least one of said proximally oriented ends.

13. (Cancelled)

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14. (Amended once) The apparatus of claim 11, further including a restraint mechanism for openly restraining and releasably retaining said fastener in said open configuration.

15. (Amended once) The apparatus of claim 14, wherein said restraint mechanism is a suture.

16. The apparatus of claim 14, wherein said restraint mechanism is a restraint clip.

17. The apparatus of claim 14, wherein said restraint mechanism is a generally cylindrical tube having an opening for accepting at least a portion of said plurality of proximal members.

18. The apparatus of claim 17, wherein said restraint mechanism has an inner surface for restraining said plurality of proximal members.

19. (Amended once) The apparatus of claim 14, wherein said restraint mechanism releases said fastener when said fastener is pulled from said restraint mechanism.

20. (Amended once) The apparatus of claim 14, wherein said restraint mechanism releases said fastener when said restraint mechanism is squeezed.

21. (Amended once) The apparatus of claim 11, further including a piercing member having a tip and a hollow end for accepting at least a portion of said plurality of proximal members.

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22. (Amended once) Apparatus for fastening tissue comprising:
a fastener having a stopper, where said stopper includes one or more distal members, and a plurality of proximal members flexibly attached to said stopper, said fastener having a fastened configuration where at least one of said plurality of proximal members opposes at least a portion of said stopper; and
a restraint mechanism to releasably restrain said plurality of proximal members of said fastener in an open configuration away from said fastened configuration without restraining said one or more distal members,
such that a tissue is placeable within said releasably restrained fastener, and where that upon releasing said fastener from said restraint mechanism, said plurality of proximal members return toward said fastened configuration to compress said tissue.

23. (Amended once) The apparatus of claim 22, wherein said fastener comprises two proximal members.

24. (Amended once) The apparatus of claim 22, wherein said fastener is nitinol.

25. (Amended once) The apparatus of claim 22, wherein said fastener is of unitary construction.

26. The apparatus of claim 22, wherein said plurality of proximal members are elongated members.

27. (Amended once) The apparatus of claim 22, wherein said one or more distal members each comprise a disk-shaped member.

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28. (Amended once) The apparatus of claim 22, wherein the number of proximal members is equal to the number of distal members.

29. (Amended once) The apparatus of claim 28, wherein said fastener has a longitudinal orientation having a centerline, and wherein said proximal members and said distal members are approximately symmetric about said centerline.

30. The apparatus of claim 22, wherein a portion of said stopper has a proximally oriented surface, wherein said stopper is a spring, and wherein said stopper is distally deformable for application of force to said tissue.

31. The apparatus of claim 22, wherein at least one of said plurality of proximal members of said fastened configuration has a distally oriented end, and wherein said distally oriented end of said fastened configuration opposes at least a portion of said stopper.

32. The apparatus of claim 22, wherein at least a portion of said stopper has proximally oriented ends and wherein at least a portion of said plurality of proximal members of said fastened configuration oppose at least one of said proximally oriented ends.

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33. (Amended once) The apparatus of claim 22, wherein at least one of said plurality of proximal members of said fastened configuration has a distally facing surface, wherein at least a portion of said stopper has a proximally facing surface, and wherein at least a portion of said distally facing surface of said fastened configuration opposes said proximally facing surface.

34. (Cancelled)

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35. (Amended once) The apparatus of claim 22, wherein said restraint mechanism comprises a suture.

36. (Amended once) The apparatus of claim 22, wherein said restraint mechanism is a restraint clip.

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37. (Amended once) The apparatus of claim 22, wherein said restraint mechanism is a generally cylindrical tube having an opening for accepting at least a portion of said plurality of proximal members.

38. The apparatus of claim 37, wherein said restraint mechanism has an inner surface for restraining said plurality of proximal members.

39. (Amended once) The apparatus of claim 22, wherein said restraint mechanism releases said fastener when said fastener is pulled from said restraint mechanism.

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40. (Amended once) The apparatus of claim 22, wherein said restraint mechanism releases said fastener when said restraint mechanism is squeezed.

41. (Amended once) The apparatus of claim 22, further including a piercing member having a tip and a hollow end for accepting at least a portion of said plurality of proximal members.

42. (Amended once) A tissue connector assembly for fastening tissue or layers of tissues having an external distal surface and an external proximal surface, comprising:

a fastener having a stopper, where said stopper includes one or more distal members, and a plurality of proximal members flexibly attached to said stopper, where at least one of said plurality of proximal members has a fastened configuration opposing at least a portion of said stopper; and
a piercing member for piercing tissue and having a holder mechanism that is releasably holding said plurality of proximal members in an open configuration, and where said stopper of said releasably held fastener proximal ends extends transversely away from said elongated member.

43. (Amended once) The assembly of claim 42, wherein said fastener includes two proximal members.

44. (Amended once) The assembly of claim 42, wherein said fastener comprises nitinol.

45. (Amended once) The assembly of claim 42, wherein said fastener is of unitary construction.

46. (Amended once) The assembly of claim 42, wherein said plurality of proximal members are elongated members.

47. (Amended once) The assembly of claim 42, wherein said one or more distal members each comprise a disk-shaped member.

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conf 48. (Amended once) The assembly of claim 42, wherein the number of proximal members is equal to the number of distal members.

49. (Amended once) The assembly of claim 48, wherein said fastener has a longitudinal orientation having a centerline, and wherein said proximal members and said distal members are approximately symmetric about said centerline.

50. (Amended once) The assembly of claim 42, wherein a portion of said stopper has a proximally oriented surface, wherein said stopper is a spring, and wherein said stopper is distally deformable for application of force to said tissue.

51. (Amended once) The assembly of claim 42, wherein at least one of said plurality of proximal members of said fastened configuration has a distally oriented end, and wherein said distally oriented end of said fastened configuration opposes at least a portion of said stopper.

52. (Amended once) The assembly of claim 42, wherein at least a portion of said stopper has proximally oriented ends and wherein at least a portion of said plurality of proximal members of said fastened configuration oppose at least one of said proximally oriented ends.

53. (Amended once) The assembly of claim 42, wherein at least one of said plurality of proximal members of said fastened configuration has a distally facing surface, wherein at least a portion of said stopper has a proximally facing surface, and wherein at least a portion of said distally facing surface of said fastened configuration opposes said proximally facing surface.

54. (Cancelled)

55. (Cancelled)

56. (Amended once) The assembly of claim 42, wherein said piercing member has a tubular portion that forms said mechanism.

B⁸ 57. (Amended once) The assembly of claim 56, wherein said mechanism has an inner surface for restraining said plurality of proximal members.

58. (Amended once) The assembly of claim 57, wherein said mechanism releases said fastener when said fastener is pulled from said mechanism.

59. (Amended once) The assembly of claim 57, wherein said mechanism releases said fastener when said mechanism is squeezed.

60. (Cancelled)

61. (Cancelled)

62. (Cancelled)

63. (Cancelled)

64. (Amended once) The assembly of claim 42, wherein said piercing member is flexible.

B⁹ 65. (Amended once) The assembly of claim 42, wherein said piercing member is nitinol

66. (Amended once) A tissue connector assembly for fastening a tissue or layer of tissues having an external distal surface and an external proximal surface, comprising:

a piercing member;

a flexible member having a first end attached to said piercing member, and a second end; and

a fastener releasably attached to said second end, said fastener having a stopper including one or more distal members, and a plurality of proximal members flexibly attached to said stopper, where at least one of said plurality of proximal members has a fastened configuration opposing at least a portion of said stopper, where said fastener is releasably attached to said flexible member

with said plurality of proximal members in an open configuration having said stopper extending transversely away from said piercing member.

67. (Amended once) The assembly of claim 66, wherein fastener includes two proximal members.

68. (Amended once) The assembly of claim 66, wherein said piercing member is flexible.

69. (Amended once) The assembly of claim 66, wherein said piercing member is nitinol.

70. (Amended once) The assembly of claim 66, wherein said flexible member is a suture.

71. (Amended once) The assembly of claim 66, wherein said flexible member is nitinol.

72. (Amended once) The assembly of claim 66, wherein said open configuration includes openly restraining said plurality of proximal members.

73. (Amended once) The assembly of claim 66, wherein said fastener is nitinol.

74. (Amended once) The assembly of claim 66, wherein said fastener is of unitary construction.

75. (Amended once) The assembly of claim 66, wherein said plurality of proximal members are elongated members.

76. (Amended once) The assembly of claim 66, wherein said one or more distal members each comprise a disk-shaped member.

77. (Amended once) The assembly of claim 66, wherein the number of proximal members is equal to the number of distal members.

78. (Amended once) The assembly of claim 77, wherein said fastener has a longitudinal orientation having a centerline, and wherein said proximal members and said distal members are approximately symmetric about said centerline.

79. (Amended once) The assembly of claim 66, wherein a portion of said stopper has a proximally oriented surface, wherein said stopper is a spring, and wherein said stopper is distally deformable for application of force to said tissue.

80. (Amended once) The assembly of claim 66, wherein at least one of said plurality of proximal members of said fastened configuration has a distally oriented end, and wherein said distally oriented end of said fastened configuration opposes at least a portion of said stopper.

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81. (Amended once) The assembly of claim 66, wherein at least a portion of said stopper has proximally oriented ends and wherein at least a portion of said plurality of proximal members of said fastened configuration oppose at least one of said proximally oriented ends.

82. (Amended once) The assembly of claim 66, wherein at least one of said plurality of proximal members of said fastened configuration has a distally facing surface, wherein at least a portion of said stopper has a proximally facing surface, and wherein at least a portion of said distally facing surface of said fastened configuration opposes said proximally facing surface.

83. (Amended once) The assembly of claim 66, further including a holder that is attached to said flexible member second end and that is releasably holding said fastener. 84. (Amended once) The assembly of claim 83, wherein said holder is a suture.

85. (Amended once) The assembly of claim 83, wherein said holder is a restraint clip.

86. (Amended once) The assembly of claim 83, wherein said holder is a generally cylindrical tube having an opening for accepting at least a portion of said plurality of proximal members.

87. (Amended once) The assembly of claim 86, wherein said holder has an inner surface for restraining said plurality of proximal members.

88. (Amended once) The assembly of claim 83, wherein said holder releases said fastener when said fastener is pulled from said holder.

89. (Amended once) The assembly of claim 83, wherein said holder releases said fastener when said holder is squeezed.

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90. (Amended once) A assembly for fastening a tissue or layer of tissues having an external distal surface and an external proximal surface, comprising:

a piercing member;

a flexible member having a first end attached to said piercing member, and a second end;

a restraint mechanism attached to said second end; and

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a fastener releasably attached to said restraint mechanism, said fastener having a stopper including one or more distal members, and a plurality of proximal members flexibly attached to said stopper, where at least one of said plurality of proximal members has a fastened configuration opposing at least a portion of said stopper, where said restraint mechanism releasably holds said plurality of proximal members of said fastener in an open configuration with said stopper extending transversely away from said piercing member.

91. (Amended once) The assembly of claim 90, wherein said fastener includes two proximal members.

92. (Amended once) The assembly of claim 90, wherein said piercing member is flexible.

93. (Amended once) The assembly of claim 90, wherein said piercing member is nitinol.

94. (Amended once) The assembly of claim 90, wherein said flexible member is a suture.

95. (Amended once) The assembly of claim 90, wherein said flexible member is nitinol.

96. (Amended once) The assembly of claim 90, wherein said fastener is nitinol.

97. (Amended once) The assembly of claim 90, wherein said fastener is of unitary construction.

98. (Amended once) The assembly of claim 90, wherein said plurality of proximal members are elongated members.

99. (Amended once) The assembly of claim 90, wherein said one or more distal members each comprise a disk-shaped member.

100. (Amended once) The assembly of claim 90, wherein the number of proximal members is equal to the number of distal members.

101. (Amended once) The assembly of claim 90, wherein said fastener has a longitudinal orientation having a centerline, and wherein said proximal members and said distal members are approximately symmetric about said centerline.

102. (Amended once) The assembly of claim 90, wherein a portion of said stopper has a proximally oriented surface, wherein said stopper is a spring, and wherein said stopper is distally deformable for application of force to said tissue.

103. (Amended once) The assembly of claim 90, wherein at least one of said plurality of proximal members of said fastened configuration has a distally oriented end, and wherein said distally oriented end of said fastened configuration opposes at least a portion of said stopper.

104. (Amended once) The assembly of claim 90, wherein at least a portion of said stopper has proximally oriented ends and wherein at least a portion of said plurality of proximal members of said fastened configuration oppose at least one of said proximally oriented ends.

105. (Amended once) The assembly of claim 90, wherein at least one of said plurality of proximal members of said fastened configuration has a distally facing surface, wherein at least a portion of said stopper has a proximally facing surface, and wherein at least a portion of said distally facing surface of said fastened configuration opposes said proximally facing surface.

106. (Amended once) The assembly of claim 90, wherein said restraint mechanism is a suture.

107. (Amended once) The assembly of claim 90, wherein said restraint mechanism is a restraint clip.

108. (Amended once) The assembly of claim 90, wherein said restraint mechanism is a generally cylindrical tube having an opening for accepting at least a portion of said plurality of proximal members.

109. (Amended once) The assembly of claim 108, wherein said restraint mechanism has an inner surface for restraining said plurality of proximal members.

110. (Amended once) The assembly of claim 90, wherein said restraint mechanism releases said fastener when said fastener is pulled from said restraint mechanism.

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111. (Amended once) The assembly of claim 90, wherein said restraint mechanism releases said fastener when said restraint mechanism is squeezed.

112. (Amended once) A method for fastening a first tissue and a second tissue with a fastener delivered to said tissue in a holder, said method comprising:

 piercing the first tissue;

 piercing the second tissue

 passing said holder through said piercing, where said fastener is releasably coupled to said holder, where said fastener has a stopper and a plurality of terminator arms, where said fastener has a coupled configuration releasably restraining said at least two terminator arms in said holder with said stopper extending approximately perpendicular from said holder, and where said fastener has a decoupled configuration where said plurality of terminator arms and said stopper are opposable across said tissue;

 seating said stopper of said coupled fastener against said first tissue; and

 decoupling said fastener,

such that at least one of said terminator arms return towards said decoupled configuration and opposes said stopper across said tissue.

113. (Amended once) A method for creating an intima-to-intima tissue contact between a first tissue and a second tissue each having an adventitia and an intima with a fastener delivered to said tissue in a holder, said method comprising:

 piercing the adventitia of a first tissue;

 piercing the intima of a second tissue

 passing said holder through said piercing, where said fastener is releasably coupled to said holder, where said fastener has a stopper and at least two terminator arms, where

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said fastener has a coupled configuration releasably restraining said at least two terminator arms in said holder with said stopper extending approximately perpendicular from said holder, and where said fastener has a decoupled configuration where said at least two terminator arms and said stopper are opposable across said tissue at more than one location;

seating said stopper of said coupled fastener against said adventitia of the first tissue; and

decoupling said fastener,

such that at least one of said terminator arms returns toward said decoupled configuration and opposes said stopper across said tissue, and such that the intima of the first tissue is in contact with the intima of the second tissue.
